Space Weather Forecast

Issued on Friday, 12 August 2022 at 13:28 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: No significant activity

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours, despite nine sunspot regions on the visible disc, six of which have been numbered. The largest flare was a common class flare from a small sunspot in the southwest disc, although this region is showing signs of simplification. The other regions of interest include one in the centre north disc, which has maintained a cluster of new spots to the north of more mature spot, but shown no further signs of growth on the 12th. The majority of any development has been in a region in the south centre disc, which has some magnetic complexity but currently remains small, and also in another small region on the northeast disc. No Earth-directed Coronal Mass Ejections (CMEs) were observed.

Solar Wind / Geomagnetic Activity: Earth has been moving through a series of fast wind regions, due to a sequence of coronal holes on the Earth-facing disc. This has brought elevated solar winds, along with occasional increases in the strength of the magnetic field, from weak to moderate. This has included periods where the north-south directional component has become southward pointed (negative), leading to Unsettled to Active geomagnetic activity between 11/1200-12/0000. This eased to Quite to Unsettled after 12/0000, with the north-south component becoming northward (positive).

Energetic Particles / Solar Radiation: The count rather of energetic particles (high energy protons) has remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to persist at Low levels, with a slight chance of rising to Moderate from any isolated M-class flares. This may be further increased with the potential for further growth of any of the small sunspot regions on the disc, or from a further region that is soon expected to rotate onto the Earth-facing side of the Sun, in the southeast.

Solar Wind / Geomagnetic Activity: he are no Earth-directed CMEs. Solar wind speeds are expected to peak day 1 (12th), before gradually declining through the forecast period. Resultant geomagnetic activity is expected to be Quiet with Unsettled intervals possible day 1 and into day 2 (12th and 13th), and a slight chance of Active intervals, before easing to be mainly Quiet.

Energetic Particles / Solar Radiation: The count rather of energetic particles (high energy protons) is forecast to persist at background with no solar radiation storms occurring.

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Met Office

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	15	15	15	15
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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